Network Working Group
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SOME BRIEF PRELIMINARY NOTES ON THE ARC CLOCK

The ARC clock system provides a time reference that is written into the core memory of the XDS 940 Computer. There are two types of time information available--absolute and relative.

The absolute time is written into two adjacent words of core with the following format:

First Word --

Bits 0 thru 7 contain the month code in straight binary with a range of 1 to 12

Bits 8 thru 15 contain the day code in straight binary with a range of 1 to 31

Bits 16 thru 23 contain the year code in straight binary with a range of 0 to 99

Second Word --

Bits 00 thru 7 contain the hour code written in straight binary with a range of 0 to 23

Bits 8 thru 15 contain the minute code written in straight binary with a range of 0 to 60

Bits 16 thru 23 contain the second code written in straight binary with a range of 0 to 60

These 2 words are written once each second. It is anticipated that the accuracy of the initial setting will be on the order of 1 second, as referred to WWV, and that the oscillator drift rate will not account for an accumulated error of more than 1 second every 250 days. The oscillator and clock are provided with standby power in order to maintain the accuracy of the system. Because of variable delays in the time required to obtain access to the 940 core memory, it is anticipated that the short-term accuracy will be on the order of 10 to 20 microseconds.

The relative time, which is written into one word of core memory, is simply the contents of a 24 bit binary accumulator. The rate at which the accumulator is updated can be chosen to be either once very 100 micro seconds or once every millisecond. In either case the core location is written each time the accumulator is updated. As above the short-term accuracy will be about 10 to 20 microseconds and the long-term accuracy will be the equivalent of one second every 250 days.